## REMARKS

Applicant has reviewed the Office Action mailed on August 15, 2003 as well as the art cited. Claims 1-26 are pending in this application.

*Rejections Under 35 U.S.C. § 102*

Claims 1, 11-13 were rejected under 35 USC § 102(b) as being anticipated by Iwane, (U.S. Patent No. 5,719,750) (referred to here as "Iwane").

Claim 1 of the present application recites:

> 1. An electronic device comprising:
>
> a circuit board;
>
> a first circuit disposed on a first side of the circuit board, the first circuit connected to a first ground plane of the circuit board;
>
> a second circuit disposed on a second side of the circuit board, wherein the second side is opposite the first side, the second circuit connected to a second ground plane of the circuit board; and
>
> wherein the first and second ground planes respectively lie in different planes of the circuit board and are electrically interconnected by a conductive trace disposed within the circuit board.

The Office Action took the position that components 6a-6c of Iwane are "a first circuit disposed on a first side of the circuit board, the first circuit connected to a first ground plane of the circuit board" as recited in claim 1 of the present application. The Office Action also took the position that components 6d-6e of Iwane are "a second circuit disposed on a second side of the circuit board, wherein the second side is opposite the first side, the second circuit connected to a second ground plane of the circuit board" as recited in claim 1 of the present application.

However, this position is inconsistent with how Iwane characterizes the referenced components. Iwane states, in reference to a first embodiment shown in FIG. 2, that:

> A high frequency circuit comprising the electronic components 6a, 6d is connected to the ground layer 3a and a digital circuit comprising the electronic components 6c, 6e is connected to the ground layer 3b.

Iwane, column 3, lines 64-67. In other words, contrary to what is asserted in the Office Action, components 6a-6c are not part of the same circuit nor are components 6d-6e part of the same circuit. Thus, components 6a-6c are not a "a first circuit disposed on a first side of the circuit board, the first circuit connected to a first ground plane of the circuit board" nor are components 6d-6e "a second circuit disposed on a second side of the circuit board, wherein the second side is opposite the first side, the second circuit connected to a second ground plane of the circuit board" as recited in claim 1 of the present application.

The same arguments apply to the embodiments of Iwane shown in FIGS 6, 8, and 10.

Accordingly, it is respectfully requested that this rejection of claim 1 be withdrawn.

Claims 11-13 all ultimately depend from claim 1. Therefore, for at least those reasons set forth above with respect to claim 1, it is respectfully requested that the rejection of these claims be withdrawn.

*Rejections Under 35 U.S.C. § 103*

Claims 2-7, 16-18 and 22-24 were rejected under 35 USC § 103(a) as being unpatentable over Iwane in view of Hirashiro (JP 406069680A) (referred to here as "JP").

In rejecting claims 2-4, the Office Action took the position that Iwane discloses all of the limitations of the claimed invention except for the first circuit having a switching mode power supply as recited in the rejected claims. The Office Action then asserts that JP shows an inverter module having a power circuit that comprises a capacitor and an inductor that is capable of being either a forward or flyback type switch mode power supply. The Office Action then reasons that it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a first circuit having a switch mode power supply as taught by JP in the printed circuit board of Iwane in order to provide a switching circuit and power for a circuit board.

Claims 2-4 ultimately depend from claim 1. Therefore, the same arguments set forth above with respect to claim 1 apply to claims 2-4 as well.

Moreover, the Office Action has failed to provide an adequate motivation for the proposed combination set forth in the Office Action. To make out a prima facie case of obviousness under Section 103, among other things, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP Section 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. MPEP Section 2143.01 *citing In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.).

Even assuming that the printed circuit board of Iwane could be modified to include the alleged switch mode power supply of JP, the Office Action provides no motivation for why one of ordinary skill in the art would actually want to make the proposed modification. In other words, the Office Action provides no explanation as to why one of ordinary skill in the art would be motivated to include the alleged switching mode power supply of JP in the printed circuit board of Iwane. Indeed, Iwane characterizes its invention, at least in one embodiment, as being used with an *external* power supply. *See, e.g.*, Iwane, claim 3 ("3. A multilayer printed wiring board according to claim 1, wherein at least two ground layers are connected to the ground of a single power supply outside the board.").

Accordingly, it is respectfully requested that this rejection of claims 2-4 be withdrawn.

In rejecting claims 5-6 of the present application, the Office Action took the position that JP shows a second circuit that controls a first circuit and that the first circuit is adapted to power the second circuit. The Office Action reasoned that it would have been obvious to one of

ordinary skill in the art at the time the invention was made to have a second circuit control a first circuit and the first circuit adapted to power the second circuit as taught by JP in the printed circuit board of Iwane in order to provide control and power circuits for a circuit board.

Claims 5-6 ultimately depend from claim 1. Therefore, the same arguments set forth above with respect to claim 1 apply to claims 5-6 as well.

Moreover, the Office Action fails to make out a prima facie case of obviousness under Section 103. The Office Action appears to be taking the position that would one of ordinary skill in the art would have been motivated to include the alleged power and control circuits of JP in the printed circuit board of Iwane in order to provide power and control circuits in the printed circuit board of Iwane. It is respectfully submitted that this reasoning is circular and fails to provide any motivation for why one of ordinary skill in the art would actually want to include the alleged power and control circuits of JP in the printed circuit board of Iwane. Again, as noted above, even if (for the sake of argument) the Iwane and JP references can be combined or modified, that would not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. There is no indication in the cited references that the proposed combination would have been desirable.

Accordingly, it is respectfully requested that this rejection of claims 5-6 be withdrawn.

In rejecting claims 7 and 18 of the present application, the Office Action took the position that Iwane and JP do not show the second circuit operates at current levels substantially lower than the first circuit. The Office Action reasons that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a second circuit operate at current levels substantially lower than the first circuit in order to control power applied on the printed circuit as taught by Iwane and JP.

Claim 7 ultimately depends from claim 1. Therefore, the same arguments set forth above with respect to claim 1 apply to claim 7 as well.

Claim 18 depends from independent claim 16. Claim 16 recites in relevant part "a power loop disposed on a first side of the circuit board, the power loop connected to a first ground plane of the circuit board" and "a control circuit disposed on a second side of the circuit board, the second side opposite the first side, the control circuit connected to a second ground plane of the

circuit board, wherein the control circuit is adapted to control the power loop." For at least the same reasons set forth above with respect to claim 1, Iwane fails to disclose these features of claim 16 and therefore claim 18.

Moreover, the Office Action fails to make out a prima facie case of obviousness under Section 103. The Office Action concedes that neither Iwane or JP show the additional features recited in dependent claims 7 and 18 of the present application. However, the Office Action fails to provide any reasoning as to why one of ordinary skill in the art would have been motivated to make the proposed modification. It is respectfully submitted that the Office Action is using impermissible hindsight in making the proposed modification.

Accordingly, it is respectfully requested that this rejection of claims 7 and 18 be withdrawn.

In rejecting claims 16-17, the Office Action took the position that Iwane discloses all of the features recited in the rejected claims except for a power loop and a control circuit disposed on first and second surfaces of the printed circuit board and that the power loop is adapted to power the control circuit. The Office Action further reasoned that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a power loop and a control circuit disposed on first and second surfaces of the printed circuit board as taught by JP employed in the printed circuit board of Iwane for the purpose of providing power and control input/output signals for the printed circuit board.

As noted above, claim 16 recites in relevant part "a power loop disposed on a first side of the circuit board, the power loop connected to a first ground plane of the circuit board" and "a control circuit disposed on a second side of the circuit board, the second side opposite the first side, the control circuit connected to a second ground plane of the circuit board, wherein the control circuit is adapted to control the power loop." For at least the same reasons set forth above with respect to claim 1, Iwane fails to disclose these features of claim 16.

Moreover, the Office Action fails to make out a prima facie case of obviousness under Section 103. The Office Action fails to provide any reasoning as to why one of ordinary skill in the art would have been motivated to make the proposed modification. It is respectfully

submitted that the Office Action is using impermissible hindsight in making the proposed modification.

Accordingly, it is respectfully requested that this rejection of claims 16-17 be withdrawn.

Claims 22-24 all ultimately depend from claim 16. Therefore, the arguments set forth above with respect to claim 16 apply to these claims as well. Accordingly, it is respectfully requested that this rejection of claims 22-24 be withdrawn.

## CONCLUSION

Applicant respectfully submits that claims 1-26 are in condition for allowance and notification to that effect is earnestly requested. If necessary, please charge any additional fees or credit overpayments to Deposit Account No. 502432.

If the Examiner has any questions or concerns regarding this application, please contact the undersigned at (612) 332-4720.

Respectfully submitted,

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